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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SUTHAR, RISHI S

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/759,421	KAWAKAMI, CHIKUNI	
	Examiner	Art Unit	
	Rishi Suthar	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20061003; 20060811</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Responsive to amendment filed on 21 August 2006.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by McDermott (US 6,227,685).

McDermott teaches in Figures 2, 8 and 9 a lighting apparatus comprising a circuit board (49); an LED light source mounted on said circuit board (via leads 32); a reflector (8) having an internal reflecting surface that surrounds the rear side and side surface sides of said LED light source, wherein said LED light source is placed clear of an internal reflecting surface of said reflector, such that said reflector reflects light emitted from said LED light source in a side direction and a rear direction of said LED light source in directions away from the circuit board.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 5 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over James et al. (US 4,306,716) in view of Chen (5,119,174).

James et al. teaches a lighting apparatus comprising a circuit board (70); an LED light source (42-44); and a reflector for reflecting ahead the light emitted from the light source mounted on the circuit board and extending beyond an uppermost surface of the circuit board so as to surround the LED light source. James et al. does not expressly disclose a reflecting surface formed on the surface board. Chen discloses a lighting apparatus where a circuit board has a reflecting surface with LED light sources mounted on it. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a reflective surface on the circuit board of James et al. as taught by Chen since coating circuit boards is a conventional method for improving efficiency of a lighting system by maximizing the use of the light emitted from the LED light sources

Regarding claims 5 and 21-23, the combination of James et al. and Chen teach an optical element (74 in James et al.); and a circuit board (70 in James et al.) with a mounting hole (81, 82 in James et al.) and the reflector is provided with a claw (83, 84) that engages with a periphery of the mounting hole.

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5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over James et al. (US 4,306,716) and Chen (5,119,174) as applied to claim 1 above, and further in view of Koay et al. (US 2002/0047130).

The combination of James et al. and Chen teach the invention as claimed above, but does not teach that the reflecting surface on the circuit board is formed by gold plating. Koay et al. teaches that gold plating on circuit boards is a conventional method in light sources (Koay et al; paragraph [0011]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the reflector of James et al. and Chen by gold plating as is conventional for improving the light reflection properties.

6. Claims 3, 4, 11 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over James et al. (US 4,306,716) and Chen (5,119,174) as applied to claim 1 above, and further in view of Kitano et al. (US 2003/0216151).

Regarding claim 3, James et al. and Chen teach the invention as claimed above, but does not expressly disclose the LED is a surface mounted white LED. Kitano et al. teaches a LED light source which can use a white colored chip LED as the light source (Par. [0047], lines 2-4). It would be obvious to one of ordinary skill in the art at the time of applicant's invention to modify the light source of James et al. and Chen to use a white colored surface-mounted chip LED as taught by Kitano et al. since it is conventional to use white surface mounted LEDs in lighting devices.

Regarding claim 4, James et al. and Chen teaches the invention as claimed above but does not expressly disclose red, green and blue LED light sources. Kitano et al. teaches an LED light source where the LED light source is comprised of three types of LED light sources for emitting red light (22a), green light (23a), and blue light (24a), and the LED light source for emitting the light in each color is radially placed as shown in Fig. 3. It would be obvious to one of ordinary skill in the art at the time of applicant's invention to modify the light source of James et al. and Chen to use an RGB LED light source as taught by Kitano et al. so as to use the light source in order to provide a multi-color LED lighting display in a smaller space (Kitano et al., paragraph [0015]).

Regarding claim 11 and 12, James et al. and Chen teaches the lighting apparatus as claimed above but does not teach an electronic flash apparatus of a camera or a camera comprising the lighting apparatus. Kitano et al. teaches an electronic flash of a camera and a camera using an LED light source. It would be obvious to one of ordinary skill in the art at the time of applicant's invention to use the light source of James et al. and Chen in the electronic flash apparatus and camera of Kitano et al. since the light source of James et al. and Chen provides a wide viewing angle and thus would be suitable for an electronic flash apparatus of a camera (Kitano et al., paragraph [0016]).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDermott (US 6,227,685) in view of Kitano et al. (US 2003/0216151).

McDermott teaches the invention as claimed above, but does not teach three LED sources for emitting red, green and blue light. Kitano et al. teaches an LED light source where the LED light source is comprised of three types of LED light sources for emitting red light (22a), green light (23a), and blue light (24a), and the LED light source for emitting the light in each color is radially placed as shown in Fig. 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a multi-color LED arrangement as taught by Kitano et al. in the LED light source of McDermott in order to provide a white light which is suitable for flash photography.

8. Claims 8, 9 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDermott (US 6,227,685) in view of Sommers (US 2003/0180037).

McDermott teaches the lighting apparatus as claimed above, but does not teach an electronic flash apparatus of a camera or a camera comprising the lighting apparatus. Sommers teaches an electronic flash apparatus (4) of a camera and a camera (1) which uses an LED flash apparatus in Fig. 1 (Par. [0020]). It would be obvious to one of ordinary skill in the art at the time the invention was made to use the lighting apparatus of McDermott in the electronic flash apparatus of a camera of Sommers since the lighting apparatus of McDermott improves the efficiency of the device by maximizing the light outputted and would thus decrease the amount of power needed.

Response to Arguments

9. Applicant's arguments with respect to claims 2-4, 11 and 12 have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments filed 21 August 2006 have been fully considered but they are not persuasive.

Regarding claims 6 and 10, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a chip component mounted directly on a reflecting surface and a through hole in the circuit board) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, although McDermott does not explicitly disclose that light from the LED is emitted in a rear direction, it is known that LEDs emit light in a rear direction. For this reason, the LED of McDermott is placed clear of the internal reflecting surface which surrounds the side and rear side of the LED, as shown in Fig. 2 to maximize the efficiency of the light emitted from the LED.

Regarding claim 1, the references have been combined to show that a reflecting surface that is placed over a circuit board as taught by Chen can be placed on the board of James et al. With this arrangement, the modified circuit board (70) of James et al. would have a reflecting bottom surface (which corresponds to the "reflecting surface") and the "reflector" as claimed would be the reflectors 72 in James et al. With this arrangement, the lighting apparatus can operate more efficiently since light will be

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reflected to the front from all directions. Applicant is also directed to Reisenauer et al. (US 6,161,910; previously cited) where a reflecting surface is placed on an LED circuit board to reflect light in a front direction.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Telephone Numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rishi Suthar whose telephone number is 571-272-8456. The examiner can normally be reached on M-Th 8:30am to 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rishi Suthar
Examiner
Art Unit 2851

RS
October 12, 2006

William Perkay
Primary Examiner